ON DENGUE.

By this name is known an eruptive fever, or exanthematous affection, which, in 1827–28, spread extensively over the West Indian Islands and the neighbouring coast of the American continent. It seems to have appeared first in the island of St. Thomas, the chief town of which it invaded in September, 1827, attacking in rapid succession almost every individual in a population of about 12,000. Towards the end of October, it passed over to the neighbouring island of St. Croix. We hear of it, in November, in St. Bartholomew's, and in Antigua in January, 1828. It prevailed at Havanna in the succeeding April, at New Orleans in May and June; and in July and August affected very generally the inhabitants of Charleston, South Carolina, and reached Savannah (Georgia) in September and October. During the same summer, it is said to have shown itself at several points on the Gulf of Mexico, south of the Mississippi, and even along the Atlantic coast of South America; but we have no authentic details of these occurrences, which were merely noticed in the newspapers of the day. As winter approached, it ceased gradually, either having no new subjects to attack, or subsiding like other epidemics, and has not, since that period, been met with any where in a definite or regularly recognized form; in this its brief duration, in the suddenness of its appearance, in the rapidity of its spread, and in its total subsequent extinction, offering a striking resemblance to the *Black Death** of the fourteenth century, and the *Sweating Sickness* of the sixteenth, and several other shapes of pestilence which have at different points of time arisen and died away, scattering among the nations horror and affright. Happily, however, as the record will show, it was much unlike these plagues in proportional mortality; bringing in its train infinitely less of danger and of death than of mere suffering.

* Hecker's History of the Black Death was republished in the Select Medical Library for 1836–7.—Ed. Lib.

No definite signification is attached to the title by which it came to be universally known. The negroes at St. Thomas called it "the dandy fever," from the stiff, affected gait of those labouring under it. In Cuba it was termed "Dengue or Dunga;" whether this is merely a modification of the English slang-word *dandy*, thus altered in Spanish pronunciation, is not clear. One writer affirms that the word occurs in the vulgar cant of the lower classes in Havanna, and is used to denote the staggering uncertain walk of an intoxicated man. We shall see, as we proceed in the description of the disease, the application of these phrases.

Symptoms.—Dengue usually made its attack with pain, stiffness, and swelling of some of the smaller joints, often of the muscles of a limb, rigidity of the neck, aching of the back and loins. These pains were followed, after an uncertain though generally brief period, by headache—suffusion of the eyes—abrupt, full, frequent pulse—hot, pungent, dry skin—restlessness, thirst, and other tokens of febrile excitement. The fever did not remit, but declined and disappeared in a great majority of cases on the second or third day. In this early stage the tongue was generally clean, and the stomach quiet, but sometimes there was nausea or even vomiting. The determination to the head was occasionally violent. Instances occurred in which delirium was among the first symptoms, coming on at the commencement, and enduring until the subsidence of the febrile paroxysm. At this time the skin lost its heat and dryness, becoming relaxed, with abundant perspiration; and the local pains were all lessened in degree. A sort of miliary eruption or rash in some persons attended this sweating stage, and in a few others preceded both the local pains and the fever. It was, however, as connected with this first stage of dengue, a very inconstant affection, seeming rather a merely accidental coincident than a symptom. The pains of the joints and muscles which, as has been said, were diminished in severity at the subsidence of the febrile exacerbation, did not go off entirely; a degree of swelling, stiffness, and tenderness of the affected parts remaining permanently, though varying much in intensity in different individuals. This condition of things constituted a sort of deceptive interval between what may be described as the first and second stages of this strange disease. Many now believed themselves to have past through the attack, and attempted to resume their ordinary occupations; but soon had occasion to discover that their sufferings were by no means at an end.

On the third or fourth day, there being no fever present, or a very obscure degree of it, the tongue would begin to be coated with a yellowish fur, and the stomach would become distressed, uneasy, and irritable. The patient was now low-spirited, fretful, and anxious. Vomiting came on in some, with great languor, lassitude, and debility, and restlessness at night. This was regarded as the most oppressive and insufferable of the stages of the malady. On the fifth or sixth day from the invasion, the period varying somewhat in different individuals, the annoying symptoms just described were relieved by the coming out of an abundant eruption, met with so constantly and in so very great a proportion of the cases, that it clearly demands to be considered a characteristic and essential circumstance in the history of the disease. It consisted of minute papulæ, somewhat elevated, of a florid red, and distributed in irregularly-shaped patches ; the feet and hands being somewhat swollen, with a sense of numbness and thickening. It appeared first on the face, then on the trunk and thighs, gradually spreading to the extremities. It resembled scarlatina more than measles in the hue and aspect of the skin, but was less diffused or confluent than either. When fully developed, it was attended with some itching and burning of the surface, and at this time a second febrile paroxysm came on with return or aggravation of the muscular and arthritic pains. Inflammation and enlargement of the lymphatic glands in the neck, axilla, and groin attended in a good many cases ; these parts being apt to continue swollen and painful for some time after convalescence was fairly established.* The eruption disappeared after two or three days' duration, becoming gradually paler, with some desquamation of the cuticle.

Of all the symptoms of dengue the affection of the joints was the most tenacious and troublesome, adhering for weeks to some patients, and constituting a sort of permanent lameness or loss of mobility. Nay, even now (January, 1835), some of the population of cities visited by this plague persist in speaking of the rheumatic or quasi rheumatic decrepitude and pain under which they labour as "the effects of the dengue."

All classes of persons were subject to this singular exanthem, and all equally and alike. The aged and the young, the infirm and the robust, the native and the stranger, the black and the white, all

* In a few instances, suppuration of these tumours took place.

shared the same sufferings. Very young children were liable to the disease, even from a few days after birth ; nay, some were supposed to be actually born with it. The circumstances of these latter cases are described as follows :—The mother having recently passed through the attack, or still labouring under it, the skin of the infant at delivery was observed to be of a scarlet red, the tongue and lips smooth and fiery ; it was obviously in pain, and could not bear to be disturbed, screaming violently if lifted, or if its limbs were moved ever so gently. Below the fifth year of age, convulsions very often attended the invasion, and in some instances were repeated with frequency throughout the whole course of the attack. In very advanced life, there was, from the first, great debility and extreme prostration. Some old people were afflicted with erysipelatous inflammation of the lower extremities, supervening after the eruption had disappeared.

Pregnant women when attacked were very liable to abortion, and a remarkable number of miscarriages and premature labours occurred. The violent pains in the back and loins, which came on so generally at the invasion, extended downward into the thighs, and the uterus being thus excited, the fœtus was ultimately expelled. A sore mouth was among the frequent symptoms of dengue, and one or two instances of pretty severe *glossitis* occurred. In the worst of these, the appearance of the organ has been completely altered, and its functions much impaired, indeed nearly abolished ; the articulation being extremely indistinct, and the capacity of appreciating taste and flavours singularly defective. The surface of the member is intersected with deep lines, which divide it in every direction, like flesh which has been "chopped" for culinary purposes. The ulcers formed in the mouth were often very irritable and painful, and healed slowly and with difficulty. Then followed a free flow of offensive saliva, with lividness and sponginess of the gums, offering considerable resemblance to the symptoms of mercurial ptyalism. In a few cases hemorrhage occurred from the gums and fauces.

Pathology.—Dengue is to he classed properly among the *exanthemata.* It is an eruptive fever of distinct and specific character. Its essential symptoms are, in the *first stage*, a painful affection of the joints and muscles ; and in the *second*, divided by an interval obvious and sufficiently regular, a cutaneous eruption. The arthritic inflammation of the first stage was attended by fever of the ordinary

inflammatory type of twenty-four to forty-eight hours' duration. The eruption was preceded, as is usual in the exanthemata, by considerable gastric oppression, with nausea and sometimes vomiting. Let us separate the characteristic from the incidental circumstances of its history, and from the former proceed to designate its correct name and true pathology. 1. An *arthritis*—a painful and apparently inflammatory affection of the joints—was in a vast majority of instances its earliest symptom. The attack was rarely ushered in by a formed chill or febrile rigour. In general, the very first indication of seizure consisted merely in a painful affection of some joint or limb. In the case of the writer of this article, a single finger of the right hand became swollen and stiff for more than an hour before any other symptom of the invasion was observed. Other joints then became successively painful, and after a considerable interval, fever supervened, ushered in by headache, &c. A child, four years old, complained, on rising early in the morning, of pain in the foot ; his hand next became stiff, then his knees, &c., but he ate his breakfast as heartily as usual—the disease gradually developing itself during a space of at least five hours before any febrile exacerbation could be perceived ; though the pulse, breathing, and condition of the surface were frequently examined. A very old negro woman was ascending a stair, when she was suddenly seized with such severe pain, that she was utterly unable to proceed. Her fingers, the chief seat of her complaints, were all of them bent, and could not be straitened, and the intensity of suffering was such that she lay prostrate with tears, and loud cries, and sobs. Some hours elapsed before she had any fever, and then there was but a moderate paroxysm. In a very stout and manly youth, the pain at the very tips of the fingers was so intolerably severe that he wept bitterly. He had been much relieved by fomentations and opiates before any degree of fever supervened.

As it was the almost universal fact that these arthritic affections had thus endured for some time before the invasion of fever, with its ordinary concomitants, headache, red eyes—full, abrupt, frequent pulse—hot, pungent, dry skin, thirst, &c., so it was rather uncommon to find the stomach notably disturbed at this period or stage. Among the other irregular or incidental symptoms, was an eruption already mentioned, which showed itself occasionally thus early. It was a mere rash, and was met with oftener in children than in adults.

2. The characteristic eruption made its appearance later, after the

subsidence of the febrile paroxysm, and constituted a distinct second stage. After a duration, varying in different cases, the pain and inflammatory fever above described abated, or went off to the great relief of patients, who often thought themselves now quite well, and whose sufferings indeed sometimes, though in a very small minority of examples, ended here. But it should be remembered, that when the case was thus abruptly terminated without a second stage, the patient was liable to be attacked again and again with the arthritic affections and otheir ailments of the first stage.

The eruption which has thus been indicated as essential, was preceded by great gastric distress, which, as in all the other exanthemata, diminished as the skin became suffused, and was followed by a sort of secondary febrile exacerbation. It should be remarked, too, that the arthritis, which had been greatly relieved, returned at this time, henceforward remaining pertinaciously annoying for an indefinite period.

This singular union of an eruptive fever with inflammatory affection of the joints, deserves surely to be regarded as a new and peculiar malady—a form of disease hitherto unknown and undescribed. The West Indian practitioners, who first met with it, did not fail to notice this combination of circumstances which formed the prominent points in its history, and indeed gave it character. Hence one styles it *scarlatina rheumatica.** Another *exanthesis arthrosia,*† and a third designates it "an eruptive articular" or rheumatic fever.‡ But the vulgar appellations given it by the English negroes at St. Thomas, and by the common people of Cuba, have prevailed, and are in general use.

As it extended itself in various directions, some of its more striking features may have been softened down, or it may have been impressed with certain modifications by the influences of locality, or by mingling with endemic diseases. In this way, perhaps, we may best account for the fact, that some of the physicians who met with it in the latter months of its brief existence, have suggested its resemblance to or identity with other and well known forms of fever. Thus Osgood and Lehman, who saw it in Cuba, seem disposed to regard it as the ordinary fever of that region, under certain peculiarities of circumstances not well explained ; and Waring of Savannah dwells upon its close analogy with the "breakbone fever

* Cocke, Edin. Journal. † Nicholson, ib. ‡ Stedman, ib.

of 1826, and the epidemic fever of 1827" (a bilious remittent), in that city. Still closer are the points of similarity which may be found in the history of the breakbone fever or remittent described by Rush* as prevailing in Philadelphia in the summer and autumn of 1780, and the epidemic of Calcutta and Berhampore portrayed by Dr. Mellis in 1824–25.

Rush's Fever was met with in July. It affected all ages and both sexes. Medical men would seem to have been specially liable to it. No other febrile disease was observed during its prevalence. It came on sometimes with rigour, seldom with a chilly fit, and often without any sensation of cold. Many instances occurred in which it was introduced by a delirium. The pains which accompanied it were excessively severe in the head, back, and limbs ; in some they affected the neck and arms, and in one case produced a difficulty of moving the fingers of the right hand. Hence the disease was sometimes believed to be a rheumatism, but its more general name among all classes of people was the " breakbone fever." A nausea universally, and in certain instances vomiting attended. A screatus or constant spitting was in many cases observed through the whole disease. The bowels were in most cases regular. The tongue was generally moist, and of a yellow hue. The skin was moist, especially when the case terminated on the third or fourth day. The pulse was quick and full, but never hard ; there was little or no thirst. A rash often appeared on the third or fourth day, which proved favourable ; it was accompanied by a burning in the palms of the hands and soles of the feet. At this time, many people who were not confined to bed, and some who had no fever, had an efflorescence on their skins. Convalescence was slow and tedious. A bitter taste in the mouth and a yellow tongue continued for nearly a week. Most of those who recovered complained of nausea and total want of appetite. Great dejection of spirits was the most remarkable attendant on convalescence. A young lady proposed, he says, to change the name of the disease, and to call it in that stage the *break-heart* instead of the *breakbone* fever. A remark to the same purport, and almost in the same words, was made to the writer by a Spanish woman recovering from dengue, who had never heard of Rush or his writings. The mildness of the requisite treatment, and the small proportional mortality, are, also, points of resemblance.

* Vol. i. p. 216.

The differences, however, are not less marked and striking. In Rush's Fever there were remissions every morning, and sometimes in the evening. The exacerbations were more severe every second day, and sometimes two exacerbations occurred in one day. When the fever did not terminate on the third or fourth day, it often ran on to the eleventh, fourteenth, and even twentieth days, assuming in its progress typhoid symptoms. Rush does not regard the eruption as an essential or even a very prominent part of the disease. Indeed, he does not describe it at all, merely terming it "a rash;" though he speaks of it as a frequent and favourable symptom. On the whole, it seems reasonable to conclude, that the two maladies, although presenting some curious coincidences, are in nature essentially distinct and different. One being an eruptive fever, new, specific, and peculiar,—while the other is nothing more than an autumnal remittent, a mal'aria fever, somewhat modified by an unknown agency. And the same remark applies with equal correctness, but with more force, to the epidemics referred to by Dr. Waring of Savannah, who makes his breakbone fever of 1826 identical with the autumnal fever of 1827, which again he looks upon as identical with yellow fever; thus mingling in promiscuous confusion yellow fever, ordinary bilious remittent, breakbone fever, and dengue. Dr. Daniel of the same city considers "dengue to be certainly an exanthematic fever," though he does not regard its invasion in 1828 as its first occurrence, but believes it to have existed previously in 1826, when it bore the name of the breakbone fever. He contends justly for the essential nature of the eruption, and remarks forcibly upon the danger of treating it as an accidental symptom. He states, that when it has been repelled or prevented from appearing by mismanagement, almost every part of the system is liable to be attacked. Several cases of mania, consequent upon repelled eruption, he affirms, occurred within his observation, and refers to a case of tetanus thus produced, which terminated fatally.

Dr. Osgood of Havanna has suggested that the cause, origin, and the nature of dengue are identical with those of yellow fever. It would seem scarcely necessary to do more than compare the descriptions of the two to be struck with a strong impression of their utter dissimilarity; the following discrepancies, however, may be briefly alluded to, as clearly disproving any relation between forms of disease so distinct. In the city of Charleston, S. C., where yellow fever is frequently met with, it prevails only in the autumnal

months, August, September, and October ; very few cases having even been known to occur in July. It is the disease of unacclimated constitutions—emphatically "the stranger's fever." Native children are occasionally attacked by it ; adult natives and old residents may be said to be *secure* from its invasion ; a rule to which the exceptions are as infrequent as second attacks of small-pox or measles. African negroes are not susceptible of it. It never extends into the surrounding country, and notoriously respects such portions of the suburbs as are particularly elevated, dry, and airy. But dengue made its entrance into Charleston in June, and spent its force before the end of July ; it attacked promiscuously native adults, the oldest residents, strangers, children, and negroes, whether natives or Africans. It allowed no exemption to any locality of suburban residence, and spread, though to no great extent, in the neighbouring country.

It is still doubtful where dengue originated or first showed itself. Allusion has been already made to an epidemic which prevailed in Calcutta and its environs in 1824–25. From the description of that pestilence, in a paper published in the Transactions of the Medical and Physical Society by Dr. Mellis, it would really seem to be identical with the dengue of the West Indies and Charleston. Its universal sway, "attacking alike the new-born infant, the aged, the robust and the weak, the rich and the poor—the suddenness of its invasion—intensity of pain in the muscles and joints—the heat and scarlet red colour of the skin—the eruption or rash being succeeded by exfoliation of cuticle—these are phenomena common to both. The sequelæ are equally analogous." Dr. Mellis notices "great prostration of strength and general debility, weakness of the stomach, continued pains in the joints and œdematous swellings of the extremities." Such are the familiar effects of the dengue.

It is proper, next, to inquire into the cause or source of this exanthem. Nothing has been distinctly indicated on this point in the history of the Calcutta and Berhampore epidemic, assuming this to have been the dengue. Of the West Indian Islands, St. Thomas was first attacked. This is considered one of the most unhealthy situations among them ; the town being a free port, rich and populous, and possessing an excellent harbour, is always crowded with vessels from every part of the world. St. Croix, described as the very reverse of St. Thomas in its physical and political character, and universally reckoned one of the healthiest islands, was next

assailed. "So high," says Stedman, "is its reputation for salubrity, that it has of late years become a favourite resort for invalids from the United States of America, where it is considered the Montpelier of the West Indies."

The writers on this singular disease may be divided into two classes, one of whom confounding it with other mal'aria fevers, regard all investigation into any special or particular cause of its production as superfluous; while their antagonists, considering it as of novel and specific character, conceive it necessary to follow up the inquiry, and trace it to its peculiar source or origin. From what has been said above of its history and characteristic phenomena, it will be readily inferred that the author of this article belongs to the latter class of physicians, and believes it to be capable of proof, that dengue is a malady of contagious nature. We hear of it in Bengal in 1825. After the silent progress of a year and more, it shows itself in 1827 in a free port, in the Caribbean Sea, where ships from every quarter of the world find ready entrance. Stedman says, it was alleged to have been brought there by a vessel from Africa. He thence traces it satisfactorily to St. Croix. Successively affecting the remaining islands, it reaches Cuba in the spring of 1828, whence, in June, it obtains easy access to Charleston, New Orleans, Vera Cruz, and Carthagena. In each of these cities it is attributed to contagion as an obvious source, and is regarded as having been imported from some point at which it was known previously to exist.

It is, however, a matter of acknowledged difficulty to prove to absolute demonstration, the contagiousness of any form of disease which is not capable of being communicated by inoculation.* In the instance of such maladies, an attentive observation of all the circumstances of their origin, history, and progress offers us the only means of arriving at a probable conclusion concerning their

* This is the *experimentum crucis*, which, when it can be applied, puts the question fairly to rest. In cases which do not admit of it, the discussion seems likely to be interminable. The contagious nature of several shapes of pestilence, of plague, of typhus, and even of rubeola and pertussis, has been and still is denied by certain medical sceptics. The majority of physicians are, nevertheless, disposed to admit that, in these and perhaps other analogous instances, an impalpable virus is generated, which, when thus eliminated, is diffused at once through the atmosphere and becomes only cognizable by its effects in the reproduction of similar disease to that from which it emanated.

nature and properties. Rational probability, indeed, is the utmost that we can here attain, and an ingenious caviller may always succeed in throwing in our way objections and difficulties which shall oppose themselves to any positive decision of the point in dispute. Two special objections are offered by those who deny the contagiousness of dengue, and the same have been, with equal correctness, applied to the cases of measles, scarlatina, and hooping cough. The first is the fact that, when you have traced such disease as far back as you can, you still must arrive at a spontaneous origin, or its production from local and obvious causes, and they perceive, or affect to feel, no more hesitation in supposing *several* spontaneous sources than *one*. They also assume the principle, that no disease which has been generated in any other mode, or by the operation of other influences, can take on in its progress a contagion, and become capable of spreading itself in this way.

But even small-pox must have had a beginning, and syphilis and psora, both of which may be produced by uncleanliness of person, are capable of communication to the cleanly. Still farther, although we are here entering upon debateable ground, it is not always possible to trace continuously from step to step the course of measles, or hooping cough, or scarlet fever. They seem occasionally to arise in positions insulated from all chance of contagious transmission by any mode. Few physicians at the present day doubt the contagiousness of typhus—a doctrine to the support of which as large and weighty a mass of testimony could be adduced as to any other in medical science. But it is well understood that typhus is often generated under certain concurrent circumstances, with which the profession is familiar, and that one case so generated may become a centre from which the disease shall diffuse itself on all sides. The second objection alluded to is the rapid spread of dengue whenever it has appeared. The circumstance forms a striking feature in its character. But there is nothing peculiar in this part of its history, and it is most illogical and unscientific to regard the epidemic prevalence of disease as disproving its contagious power. The phrases epidemic, epidemic constitution of the air, and the like, which are in common use among practitioners of physic, have no definite meaning ; they refer exclusively to the general extension of disease. But no one, at all conversant with the history of disease, can entertain a doubt of the tendency of all febrile maladies, whether contagious or not, to become epidemic ; that is, to spread

themselves in this prompt, universal, and irresistible manner. Small-pox, measles, hooping-cough—all afford frequent illustrations of this principle. It would be ridiculous to pretend to trace all the cases of these that occur, when they prevail in any population, from one to another, and thus to account for every individual instance of its supervention. As in dengue so in small-pox, persons are attacked who have been altogether secluded, whether accidentally or through caution.

In all discussions of this kind, the first step to be taken is to decide upon the relative value of negative and affirmative statements—the proper rule being that which Haller has laid down in philosophising upon physiological experiments and inferences, 'that negative observations are entitled to little or no weight, when in opposition to positive assertions.' If, for example, a very few instances were brought forward upon good testimony of the spread of any infection in certain specified communities, additional numbers would be of no farther importance than this, that they should, by diversity of position and circumstance, obviate the suspicion of a local cause common to all affected. Suppose it to be made out, that a given malady being introduced into five such communities, had spread itself among them, seizing a few, many, or all within its sphere, it would be to no purpose to reply to the inference of its contagiousness drawn from such statement, that in twenty, fifty, or one hundred other instances of similar introduction, it had failed to occasion any such extension, or give rise to new cases.

Contagion, perhaps, of all the morbid agents which produce disease in the animal constitution, would seem, on first consideration, the weakest—inasmuch as it requires the greatest number and variety of concurrent circumstances to favour or ensure its impression; while on the other hand, that which we term, after Sydenham, the epidemic constitution of the air is vastly the most pervading and powerful. Every physician fails occasionally in transmitting vaccine and small-pox by inoculation. But when the latter becomes epidemic, it is known to affect persons most perfectly secluded, and guarded with all possible nicety against every imaginable approach of diseased subjects and every shape of fomites. What is the epidemic condition of the air in this latter case, but the solution or diffusion within it of the matter of contagion? What is it in any case but the diffusion throughout the atmosphere of the cause of disease, whether contagion, or mal'aria, or some other unknown and undefined agent?

Not only is the impression of contagion thus uncertain, as is proved by its failure, but its sphere of action is contracted within narrow limits—a few feet probably, as most writers agree. Whether this is the mere result of dilution, or whether the eliminated virus undergoes some alteration in its specific properties, in consequence of its admixture with air, is not determined. When we take into consideration these circumstances, and reflect farther upon the ordinary healthfulness of communities among whom contagious diseases are suddenly intruded, and the general absence or negation of that predisposition upon which disease requires so uniformly to be built up, we shall rather wonder that contagious maladies spread themselves so often and so far as they do, than that they should be confined usually within certain observable limits as to the extent of transmission and number of subjects, and that they should so frequently be suddenly lost, and seem to terminate abruptly, as in the case before us, a short though very remarkable existence.

It is for the most part a difficult task to point out the precise origin of any form of disease, and with respect to what are called, vaguely, general epidemics, the attempt has been notoriously futile. Local epidemics, however, among which dengue must of course be ranked, if its contagious nature be denied, are always, as pneumonia typhoides, for example, limited to particular season and temperature ; or, as in the case of bilious remittent, dysentery, and yellow fever, to certain localities and circumstances of soil and surface conjointly with season and temperature. But dengue has, in its brief career and well known history, shown no correspondence with any of these, being neither limited by season, local position, nor atmospheric change. Its gradual progression from one place to another, allowing abundant room for the anticipation of its arrival, and the fact that " it followed," from the time when it first appeared upon the American coast, " the great routes of commercial intercourse," are strong evidence in favour of its contagiousness. But there are positive and marked facts which seem to us to leave no room for reasonable doubt on the subject.

Dr. Stedman traces the communication of dengue clearly from St. Thomas to St. Croix. Christianstœdt, which is the seat of government of the latter, and on this account, and from its proximity to the former island, enjoys a freer intercourse with it, was invaded a week or two before the town in which he resided, Frederickstœdt. The first patient whom he saw had arrived three days before from

St. Thomas, and the disease appeared first in the family with whom this patient had come to reside ; among them, indeed, it raged exclusively for some time, with the exception of a family residing opposite, the head of which had frequent mercantile business with Christianstœdt. From there it extended through the town. "The disease," he says, explicitly, "spread from family to family, and from estate to estate, exactly in proportion to their contiguity, or to the intercourse that might happen to exist ;" and gives an instance of the latter kind, when, from the communication between two estates belonging to the same master, the one near town and the other four or five miles distant, the negroes on the latter estate "got the disease at a time when it had not spread to any other in that neighbourhood."

In the city of Charleston, the earliest cases happened in persons connected with vessels that had arrived from the Island of Cuba where dengue then prevailed. This fact is clearly made out upon the authority of two physicians of the highest respectability. Professor T. Prioleau attended the first patient, a negro, who was put on board the brig Emmeline just in port, whose captain had been ill with dengue a few days before he left Havanna. The next persons attacked were the ship-carpenter and his family, who went on board to effect some repairs in the same vessel. From these the disease spread as from a centre. A short time after these events occurred, Dr. P. G. Prioleau was called to attend the family of the captain of another vessel, who had arrived here about the same period, labouring under the disease. The dates in these instances are worth recording. Captain W. arrived in Charleston on the 31st of May, ill of dengue ; on the 20th of June, his wife was seized ; on the 1st of July, two of his daughters ; on the 2d, his son ; "it soon extended to the rest of the family." Prof. Prioleau's first case, the negro above mentioned, was taken ill on the 10th of June ; his second case on the 23d. Here we have two central spots whence the dengue rapidly diffused itself throughout the city. These early patients were far from being in the same neighbourhood. The brig Emmeline lay at Knox and Pritchard's wharf, in the upper part of the town. Capt. W. resided in Tradd-street, nearly or quite a mile distant.

Farther circumstances of a similar nature deserve notice, as tending to throw some light on the nature and history of this strange affection. It made its appearance at two points in the vicinity of the city, the qualities of the soil and atmosphere of which were as

strongly contrasted as possible. One of them, Haddrit's point, is an elevated sandy bluff, about four miles from Charleston, across the bay, noted for the salubrity of its air, and the health of its inhabitants. It has never been invaded by the yellow fever, even in the most pestilential seasons of its epidemic prevalence. Yet some cases of dengue occurred there, introduced, as he himself has stated, by a clergyman whose family resided at Haddrit's, while he attended to his official duties in the city, and by "a neighbour similarly situated." The second instance was that of a plantation lying about four miles from Charleston, in the opposite direction, in a low mal'aria country, the residents upon which were annually subject to ordinary remittent fevers. The head of the family and a negro having visited the city, were both taken ill in about a week afterward ; the wife of the former was next seized, and the disease afterwards extended among both the whites and the negroes in the place.

Prognosis.—The prognosis, in this singular affection, was remarkably favourable. Perhaps no form of disease is known in which the proportion of deaths is so small compared with the numbers attacked. Influenza alone spreads with a universality of invasion at all resembling it, and even influenza is inferior in the infrequency of exceptions to its attack. "In a population of about 12,000 souls who occupy the town of St. Thomas," says Stedman, "scarcely a single individual escaped." In all its seats, few died ; whether managed by the best professional skill or mere domestic attention, or totally neglected. Yet there was a vast difference in the degrees of this suffering undergone by different patients, and not a little in the duration of this suffering, and in the rapidity and perfectness of their convalescence. The aged were most severely handled, remaining frequently infirm and debilitated, with languor and emaciation. Corpulent persons usually suffered much, and recovered very slowly. The intemperate paid in this, as in every other form of disease, a heavy tax for their degrading indulgences. In many it served to usher in formidable paroxysms of *delirium tremens.* Dengue, indeed, can hardly be said to have ever proved fatal of itself. The rare instances in which patients died, while labouring under it, presented some complication under whose incidental symptoms the patient sank ; or some extreme feebleness of constitution in which the remedies employed were productive of fatal effects. More than one example of this nature is placed on record.

Treatment.—The violence of the early symptoms of this singular malady seemed to call imperatively for the most prompt and impressive measures. The lancet was the favourite resort of a majority of practitioners, who ascribe to it a notable power in controlling the force of the attack, and lessening the duration of the patient's sufferings. Cathartics and diaphoretics were also almost universally employed—each physician selecting those formulæ in which he had most confidence. Both the saline and mercurial purgatives had their advocates, and were maintained to be specially adapted to the case. The antimonials, in the earlier stages, and afterwards Dover's powder, and the other stimulating diaphoretics, were in general use. The ordinary domestic practice, and a large majority of cases were treated without professional aid, consisted in the administration of a mild purgative combined with or followed by a sudorific, as the solution of epsom salts in infusion of seneka, or serpentaria, or hot lemonade, until the bowels were freely opened ; the patient was then covered up moderately warm, aud warm drinks given from time to time to produce and keep up free perspiration, while the parts most pained were fomented with warm water, or bathed in spirits. Such, with slight modification, was the practice followed by the writer of this article in the few first cases that fell under his care ; but an early observation of the happy influence of opium over the extreme sufferings of the sick, led him ultimately to depend on it exclusively, or nearly so, from the invasion to the termination of the attack ; and the progress of the season, and the spread of the disease gave multiplied opportunities of noting the propriety and value of the practice. A lady, in the seventh month of pregnancy, being attacked by dengue, and menaced most urgently with premature labour, one hundred and twenty drops of tinct. opii were prescribed immediately, and ordered to be repeated within a proper interval. After three or four such doses, she fell asleep, and awoke almost entirely free from pain. Another, within a few days of her time, was not only quieted in a similar manner, but absolutely relieved from all inconvenience by the same treatment ; rising out of bed the second day, going through the eruptive stage without illness or suffering, and in ten days after being delivered of a fine healthy child. When summoned to a patient, it soon became his custom to administer, without delay or preparation, such a dose of opiate as seemed proportioned to and indicated by the severity of the attack, from a teaspoonful of common laudanum down to such a lesser dose

of this preparation, or of the tinct. of camphor, as was suited to the age and other circumstances. If the head was the seat of great pain and vehement determination, cold affusion was made, or it was bathed with spirits, while the feet were immersed in hot water; to the swollen and suffering joints and limbs warm fomentations and poultices were applied. The above dose of anodyne, which acted, also, as diaphoretic, was repeated at intervals of one or two hours, until the symptoms were relieved, usually alone, sometimes, however, in combination with the acet. ammoniæ, a combination which seemed applicable when the pains were less severe with a continuance of heat and dryness of skin, and persistence of febrile excitement. On the return of pain or febrile excitement, forming the second stage as above described, the same remedies were again resorted to, and with the same advantage, controlling, as it seemed, the gastric distress no less effectually than the arthritic pain and irritation.

In comparing the several modes of treatment, it would seem fair to remark that, if the patients subjected to the mild remedial regimen just detailed suffered *no more* at the time than those who were more actively depleted by the lancet, and cathartics, and emetics, and passed through a convalescence not more protracted than those, they must certainly be considered as gainers, inasmuch as they were put to far less annoyance and discomfort. Yet it would not be too much to affirm, that the arthritic pains which they endured were more promptly relieved; that they underwent less constitutional derangement; that they fell into a less degree of general debility, and consequently convalesced more rapidly; and that, though they did not perhaps obtain the privilege of absolute exemption from the rheumatic pains, stiffness, and incapacity, which so long haunted every community in which dengue had shown itself, yet they were notably less subject than others to these inconveniences.

In this singular disorder, the local pains usually preceded, by periods of considerable length, any symptom of fever or constitutional derangement. Hours would often intervene, during which the patient would limp through his usual occupation or amusement, and even eat heartily, and apparently digest well. Cases, indeed, occurred, in which the whole of the first or quasi-rheumatic stage would be gone through in this way, and the nature of the attack displayed at last, only by the breaking forth of the characteristic eruption. Now, it would hardly be in accordance with received opinions, to affirm that the arthritic pains here were of an ordinary

inflammatory nature ; obscure as they are, they may be regarded as congestive, or simply irritative. The opiate was here as applicable as in the cold stage of an intermittent. And even subsequently, if fever did supervene, it did not seem to contra-indicate the opiate, as being the effect of a peculiar and specific form of inflammatory irritation transient in duration, and happily determined by the nature of its proximate cause to external parts, or parts of no vital importance. In this early stage, opium was, indeed, specially serviceable. All physicians were apt to resort to the opiate in the second stage, administering it freely in some form of combination ; the Dover's powder being a general favourite. But although its exhibition was even here of undoubted advantage, the golden opportunity for obtaining its highest benefit was past ; the main object of our art, the prevention of evil, was unaccomplished ; the storm had swept by, and its consequences were, with special difficulty, if at all, remediable. It is no easy matter to account for the great prostration of muscular strength and restorative energy so often left by a paroxysm so transient, and not unfrequently so little violent in degree, yet this circumstance constituted a prominent feature in the history of the case under consideration. The contest was still to be carried on. We had to deal with an eruptive disease, and if the forces of the constitution had been impaired, either by the intensity of the attack, or by the remedies employed, as the lancet, cathartics, antimonials, &c., the centrifugal determination which formed the next essential step in its progress would be slow and imperfect, and the stomach and other internal organs would suffer in proportion. At this juncture, many were tempted, by the great gastric uneasiness and oppression, to direct purgatives of various quality, mercurial, saline, or resinous, but usually with an increase of the internal disturbance, a postponement of the period of cutaneous inflammation, and a consequent protraction necessarily of the duration of the attack. This was attended, too, for the most part, with an ultimate aggravation of the violence of the local pains, and an increase of their tendency to become fixed, and assume a chronic inflammatory disposition. The miserable stage of restlessness and oppression was soonest ended in those who remained at rest in a recumbent posture, confining themselves to the lightest diet, and avoiding all exposure to changes of temperature. In the old and infirm, and in such as had weakened themselves, and given tenacity to the centripetal determination, by the previous employment of improper medi-

cines, it became necessary sometimes to resort to the highest order of diffusible stimulants, in addition to the opiate ; as camphor, brandy, vol alkali and ether, with sinapisms to the epigastrium and extremities.

The vivid eulogium which Rush passes upon the usefulness of opium, in the somewhat similar affection described by him as occurring in Philadelphia in 1780, is worthy of notice in this connection. "Its salutary effects in procuring sweat and a remission of the fever, led me," he says, "to prescribe it in almost every case, and always with the happiest effects. Those physicians enjoy but little pleasure in practising physic, who know not how much of the pain and anguish in fevers of a certain kind may be lessened by a judicious use of opium." In a more extended experience this benevolent man would have been delighted to find that it was entirely unnecessary, at least in a large majority of the cases, to wait for what he styles "the proper evacuations," but that this relief or diminution of pain and anguish might safely be accorded to the patient at the very commencement of the attack, and thus his severe sufferings shortened by many hours, or lessened at once most notably in degree.

The writer will be pardoned for expressing, in conclusion, his belief that the profession has much to learn upon the subject of the admissibility of opium in the treatment of fevers generally, and for declaring, as he does with entire sincerity, that the most agreeable and satisfactory of all his experience in the healing art, has consisted in the employment of this divine remedy in states of the system, and under circumstances which dogmatists of all sects have taught to offer positive contra-indications to its exhibition.

THE END.